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ELECTRONICS TECHNICIAN

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Date JAN-17-57

Examination

Pentodes--Phase Inverters--Output Stages--Voltage Regulators

Circle the most correct answer:

1. In a pentode a change in plate voltage:
 - a. causes a great change in plate current. ✓
 - b. causes no change in plate current. ✓
 - ☒ c. has little effect on plate current.
 - d. none of the above. ✓
2. The plate resistance of a pentode:
 - a. is low.
 - b. comparable to a high mu-triode. ✓
 - c. is caused by secondary emission. ✓
 - ☒ d. requires high values of load resistance.
- X 3. The gain of a pentode can be:
 - a. increased by raising screen voltage.
 - ☒ b. lowered by increasing the resistance of the screen resistor.
 - c. increased by raising the bias. ✓
 - X d. increased by increasing the value of the screen resistor. ✓
4. In a paraphrase phase inverter:
 - a. the phase inverter tube must have a lower value of plate load resistor. ✓
 - ☒ b. the outputs must be equal.
 - c. the outputs must be opposite in phase.
 - d. the bias resistors determines the amount of output.
5. The screen in a pentode:
 - a. is at B plus signal potential. ✓
 - b. prevents secondary emission.
 - ☒ c. reduces capacity between grid and plate.
 - d. has no effect on plate current. ✓
6. Single tube phase inversion:
 - ☒ a. can be obtained by dividing the plate load between plate and cathode.
 - b. requires a capacitor from cathode to ground.
 - c. must be a pentode. ✓
 - d. is not possible. ✓
7. Phase inversion is to provide :
 - a. unequal voltages.
 - b. equal voltages.
 - ☒ c. equal and opposite phased voltages.
 - d. opposite phased voltages.
8. A single-ended power amplifier to provide undistorted output must be operated class:
 - a. AB₁
 - ☒ b. A
 - c. B
 - d. AB₂

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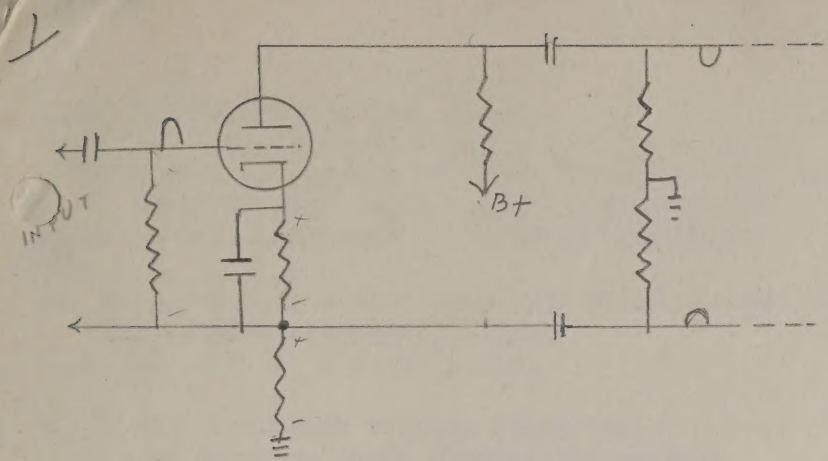
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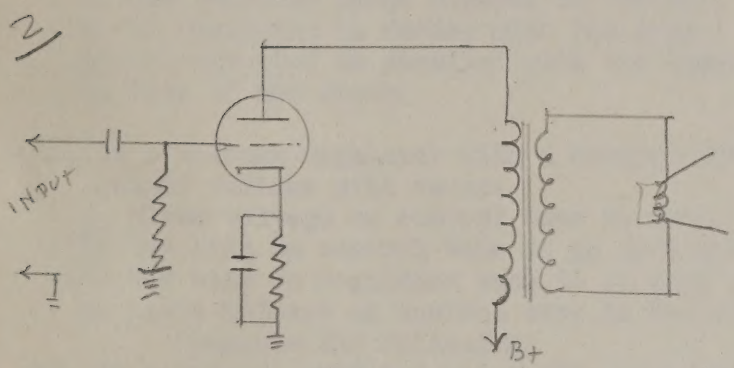
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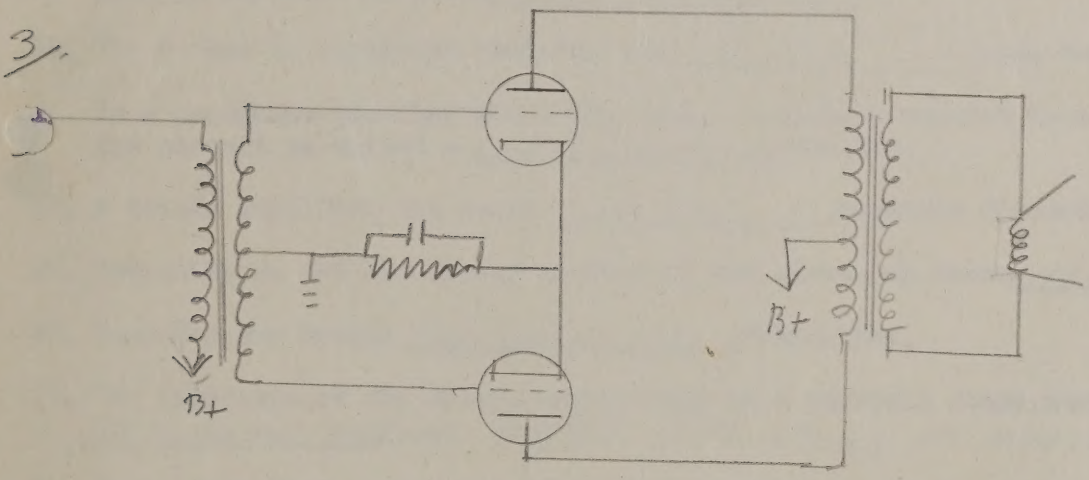
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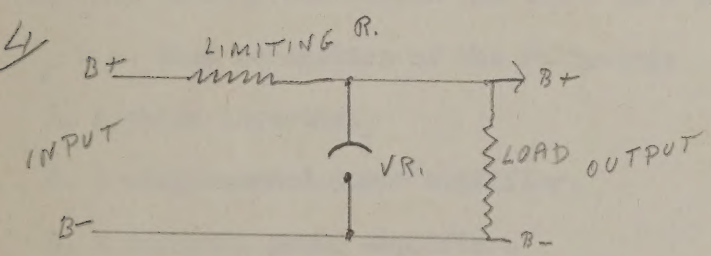
SPLIT LOAD
PHASE INVERTER.



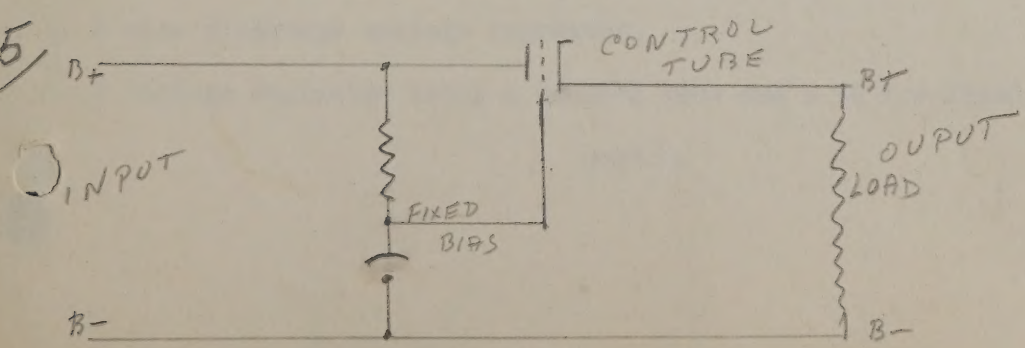
SINGLE ENDED
POWER AMPLIFIER.



PUSH-PULL
POWER AMPL.



VOLTAGE
REGULATOR.



9. In a beam power output tube:
- the suppressor is connected to the cathode. ✓
 - suppressor action is accomplished by beam current.
 - large voltage input signals are required.
 - current is limited by secondary emission. ✓
10. In a pushpull output stage for maximum power output with the least amount of distortion the tubes are operated: class:
- B ; b. A_2 ; c. A ; AB_2
11. A glow discharge voltage regulator :
- can regulate large changes in current.
 - is connected in series with the load.
 - is connected in parallel with the load.
 - None of the above.
12. In a voltage regulator with a control tube and a VR tube for its fixed bias, a drop in output voltage will cause:
- plate voltage on control tube to drop.
 - the bias on control tube to go more positive.
 - the bias on regulator tube to go more positive.
 - plate voltage on control tube to increase.
- Complete the following:
13. In a tetrode operated below the screen voltage, plate current may DECREASE with an increase in plate VOLTAGE.
14. The screen in a pentode isolates the PLATE ^(SUPPRESSOR) from the CONTROL GRID.
15. In a paraphase inverter where the output resistors connect to a common resistor to ground the circuit is called a SELF-BALANCING inverter.
16. A triode amplifier can cause SECOND harmonic distortion.
17. Operating on the non-linear portion of the curve can cause HARMONIC OR NON-LINEAR distortion.
18. Pentodes can create 3rd HARMONIC distortion.
19. The impedance of the output transformer in a pushpull stage must equal THE LOADS FOR BOTH TUBES ADDED ($R_{L1} + R_{L2}$) OR IMPEDANCE FOR BOTH TUBES
20. For undistorted output the tubes in a pushpull stage should be MATCHED.

Draw schematics of the following:

- A phase inverter.
- A single-ended power amplifier.
- A pushpull power amplifier.
- A glow discharge voltage regulator.
- A voltage regulator using a control tube and a VR for fixed bias.

